



# safety at cms

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# CERN Safety documents



## Main safety Documents

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SAPOCO

Safety codes

Divisional safety plans

Safety instructions

Specific rulings

Operational instructions

others

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Safety notes

Safety bulletin

Safety guide for experiments



ORGANISATION EUROPEENNE POUR LA RECHERCHE NUCLEAIRE  
EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH  
Laboratoire Européen pour la Physique des Particules  
European Laboratory for Particle Physics



### **CMS<sup>1</sup> ACCESS AND SAFETY PROCEDURE**

*Released as paper version after final discussion with TIS in August 16, 2002 meeting  
Russian translation available*

#### **Abstract**

A summary instruction is offered with this document to new arrivals to the CMS project as well as to those collaborators who change activities or work-place within CERN, as a book of reference and a safety refresher. The summary is entirely composed of already existing rules, references for detailed reading are also provided. Most important are the contacts listed and it is encouraged to use them as early as possible.

<sup>1</sup> Can serve as template and text-resource for other experiments as well

Produced by R.Schmidt and S.Fratianni

These documents are available  
on the web (EDMS) or  
from the group secretary





# CMS Access and Safety Procedure



- Valid for contractors and collaborators
- Gives all the information necessary for installation at CERN
- Provides reference to all CERN safety rules and documents

Available on EDMS:








<https://edms.cern.ch/document/355707/1>




# CERN Safety Documents



Special risks present at CERN/CMS have been analyzed and the relative Safety Documents are available on the SC web-site

 Safety Commission	
<b>EMERGENCY</b> <b>CONTACT</b> <b>SEARCH</b> <b>GLOSSARY</b>	<b>Documents</b>
<b>Safety at CERN</b> Safety Committees Safety Procedures Safety Training Safety in your Department	<a href="#">Safety Forms</a> <a href="#">Others</a>
<b>Documents</b>	<a href="#">SC Reports</a>
<b>Specific Risks</b>	<b>IS 5 - Emergency stops (2001)</b>  Definition of the various types of inspections, performed either by SC or by outside experts on installations and equipment, as well as methods and working conditions.
<b>SC Organisation</b> Fire Brigade Integrated Safety & Environment Radiation Protection General Safety Medical Service	<b>IS 7 - Individual protection (1993)</b>  This instruction is based on the European Directive 89/656/CEE concerning minimal safety and health requirements for the use of individual protective equipment when hazards cannot be prevented or adequately limited by collective technical protective measures.
<b>Tools</b>	<b>IS 22 - Rules for the safe use of lasers at CERN (1994)</b>  The radiation produced by lasers may be hazardous to the human eye and skin. It may also present fire or explosion risks. Lasers have been classified according to their exposure hazards. Conditions for use and warning labels and notices are recorded.
<b>Webmaster</b> 	<b>IS 23 - Criteria and Standard Test Methods for the Selection of Electric Cables and Wires with Respect to Fire Safety and Radiation Resistance (2005)</b>  This instruction is based on the latest standards and recommendations to ensure a very high level of safety against hazards associated with smoke, toxicity and corrosivity from burning plastics. It summarizes the required properties for the different materials and cable types and is applicable to all types of cables and wires and other insulated parts to be used in CERN installations.

**IS 24 - Regulations applicable to electrical installations (1990)**   
Reference is made to publications on electrical installations.





# CMS Safety Structure



**GLIMOS**

**Deputy GLIMOS**

**Technical Coordinator**

**Deputy Technical Coordinator**

**FGSO**

**CSO**

**Test beams**

- Christoph Schaefer
- Stefano Fratianni
- Alain Herve
- Austin Ball
- Christoph Schaefer
- Jean-Paul Grillet
- Emmanuel Tsesmelis

## **SX5 (Point 5) and Assembly Hall Safety Structure**

**186 Build. TSO**

**904 Build. TSO**

**ISR TSO**

**SX5 TSO**

**SX5 Deputy TSO**

**Point 5: Site Safety Coordinator**

- Jack Hill
- Manuel Dos Santos
- Daniel Arevalo
- Lucien Veillet
- Jean-Pierre Girod
- Jean Weber



# CMS Underground Area



## **UXC 55**

**TS is responsible for safety  
until "ready for gantry crane": end 2005**



**J. Osborne**

## **USC55:**

**TS responsible for safety  
until "ready for crates": end 2005**



**J. Osborne**

No works are foreseen for collaborators in the underground caverns  
until beginning 2006





# Safety Organization



LHC project requires

Site safety coordinators

Equipment  
installation

Civil Engineering  
work

PGCSPS

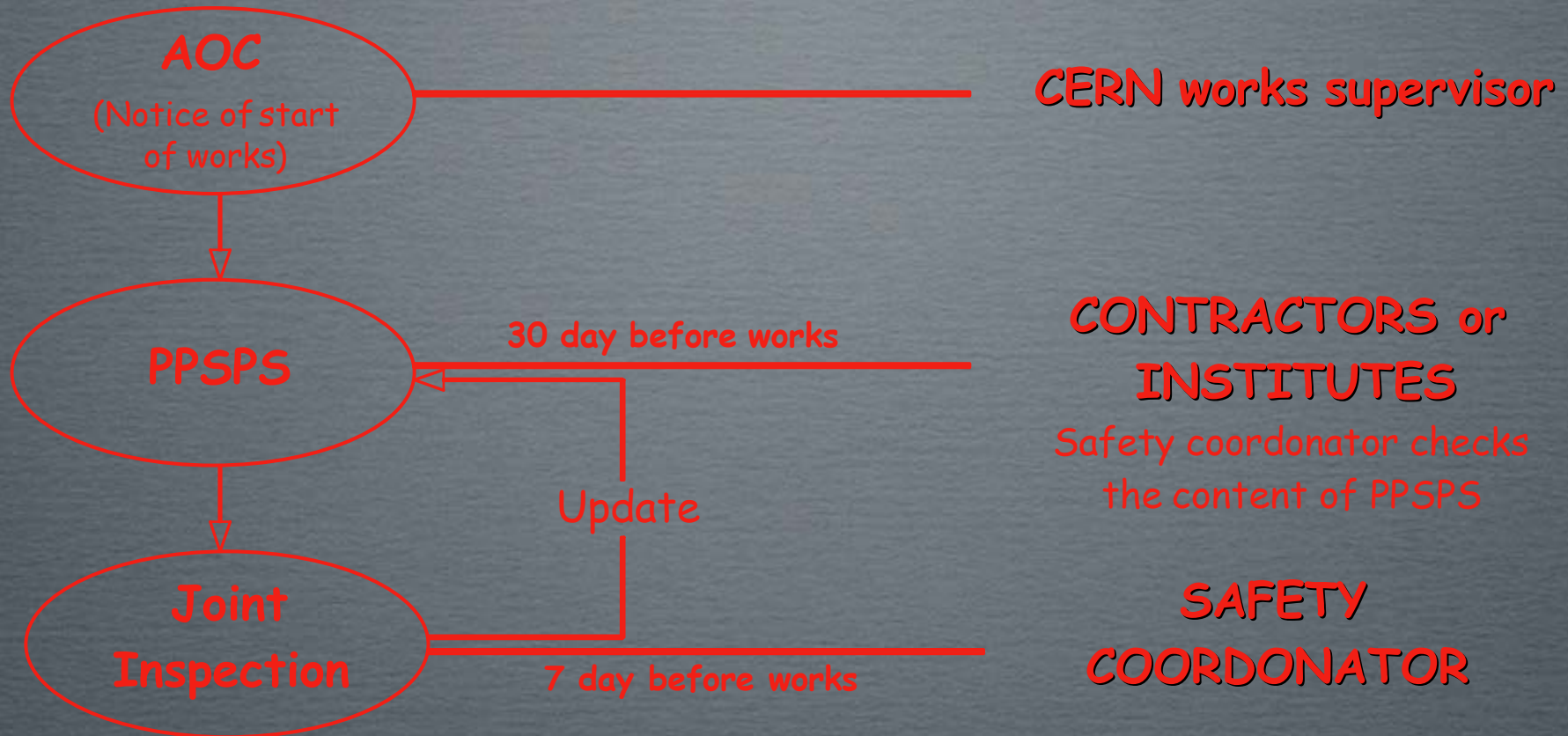
Overall Safety and Health Protection  
Plan

PPSPS

Plan Particulier de Sécurité et de la  
Protection de la Santé

The PPSPS shall be filled in either by contractor, or by  
collaborating institutes

# Safety Procedures before Work







# Pre-Installation reviews



- \* Installation review with CMS Safety responsible before start of the work

The screenshot displays the CMS EDMS (Electronic Document Management System) interface for the Hadronic Calorimeter. The left sidebar shows a tree structure of documents, with 'Hadronic Calorimeter' selected. The main content area shows details for a document titled 'CMS-GS-IP-0004 v.1 Pre-Installation Safety Review HO'. The document is marked as 'In Work' and has an EDMS ID of 483705. It lists several documents related to the review, including 'pizr\_ho\_overview ppt (23 Kb)', 'pizr\_ho\_task ppt (2 Mb)', 'pizr\_ho\_install\_procedure ppt (972 Kb)', 'pizr\_ho\_people ppt (24 Kb)', 'pizr\_ho\_materials ppt (2 Mb)', and 'BICRON\_MSDS pdf (642 Kb)'. The interface also includes a search bar, a login button, and a user status indicator 'User: GUEST'.

- \* The “Plan Particulier de Sécurité et de Protection de la Santé: PPSPS” completed
- \* Regular Inspection are done (and recorded) by safety responsible (SC and CMS) to check all safety measures are applied.

## ⇒ Information related to staff

- Qualification
- Habilitation
- First aid
- Medical aspects

## ⇒ Risks

- Fall risk (person, materials)
- Crash risk
- Crushing risk
- Electrical risks (direct/indirect)
- Chemical risks
- Work at height
- Noise
- Fire, explosion
- Radiation
- Confined spaces
- Magnetic fields
- Laser

## Method Statement





# Joint inspection



During the joint inspection, the following persons are present:

- \* Works supervisor or local supervisor
- \* Safety coordinator
- \* Contractor's (or collaborating institutes) representant (preferably, the person permanently present on site and sub contractor)

Safety coordinator launches the joint inspection



# Specific Hazards of Hall SX5



1. Noise
2. Manipulation of heavy loads
3. Work at height
4. Electricity
5. Magnetic fields
6. Cryogenics
7. Fire permit
8. Confined spaces
9. Chemical & flammable gas
10. Laser
11. Radiation



# Courses and Authorizations

**Only professionals are authorized to drive overhead cranes of capacity  $>20t$   
For Cranes  $<20t$  a formal training course is required**



**All crane operators must be trained to practice slinging: it is a part of training related to gantry crane**



**Assembling and any modifications must be carried out by qualified personnel**



**For operation of special hydraulic access devices a formal training is required**







# ELECTRICITY, Gas Systems, Water Systems, Tests..



- \* Every electric system shall be inspected by SC before being powered!
- \* For tests exist special procedures to follow in order to work safe
- \* Every test, work or intervention shall be approved by the GLIMOS





# CMS Insurance



CMS assembly hall at Point 5 has been checked by insurance inspectors.

Work conditions, safety procedures, prevention and protection systems have been verified and approved.

**All surface and underground assembly work at Point 5 is covered by a special work site insurance**